

### CLAIMS

1. Microwave tube (3) for generation of an electromagnetic wave with frequency F, characterised in that it comprises mechanical means for varying the frequency F composed of a set of rings (A, B, C, D) defining a periodic structure inside the tube and mechanical means (4, 5, 2, G; 7, 8, 9, 10) for displacing the rings with respect to each other while maintaining a periodicity for the periodic structure during displacement of the rings.

2. Microwave tube (3) according to claim 1, characterised in that the mechanical means for displacing the rings comprise a set of electrical contacts (2) between rings, at least one lead screw (4), a set of nuts (5) installed on the lead screw, a set of rods (6), each rod firmly connecting a nut to a ring, the tube (3) being provided with at least one slit (G) enabling rods (6) to pass in the wall of the tube, the lead screw (4) comprising several sectors with different pitches capable of keeping intervals between the rings during rotation of the lead screw.

3. A microwave tube (3) according to claim 1, characterised in that the mechanical means for displacing the rings comprises a set of electrical contacts (2) between the rings, one set of pins (7), each pin being firmly connected to a ring, the tube (3) being provided with at least one longitudinal slit (9) through which pins (7) can pass in the wall of the tube, a ring (8) external to the tube comprising a set of slits (10), each slit (10) in the outer ring (8) allowing the passage of a pin (7), the slits in the set of slits having a different inclination for each ring so as to maintain a periodicity for the different rings during displacement of the rings.

4. A microwave tube according to claim 1, characterised in that it is a PWT, a BWO type tube, a klystron, a magnetron, a carcinotron, or a maser.

5. A microwave tube according to claim 1, characterised in that the periodic structure of the microwave is made of corrugated plate.

6. A microwave tube according to claim 1, characterised in that it comprises an insert with an adjustable length.